

ST8812FP

HIGH VOLTAGE FAST-SWITCHING NPN POWER TRANSISTOR

Features

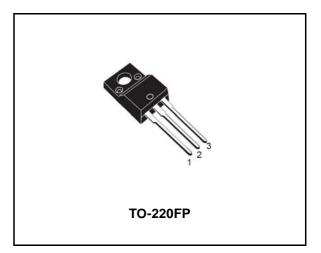
- HIGH VOLTAGE CAPABILITY
- VERY HIGH SWITCHING SPEED
- TIGHT hfe CONTROL
- LARGE R.B.S.O.A.
- FULLY INSULATED PACKAGE U.L. COMPLIANT FOR EASY MOUNTING

Applications

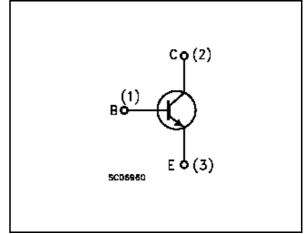
 SWITCH MODE POWER SUPPLIES FOR CRT TV

Description

The ST8812FP is manufactured using latest Multi Epitaxial Planar technology with high voltage capability. It shows wide R.B.S.O.A. and high switching speed thanks to its Cellular Emitter structure with planar edge termination and deep base diffusion.



Internal Schematic Diagram



Order codes

1	Part Number	Marking	Package	Packing
	ST8812FP	ST8812FP	TO-220FP	TUBE

November 2005

rev.1

1 Electrical Ratings

Symbol	Parameter	Value	Unit	
V _{CBO}	Collector-Base Voltage (I _E = 0)	1150	V	
V _{CEO}	Collector-Emitter Voltage (I _B = 0)	600	V	
V _{EBO}	Emitte-Base Voltage (I _C = 0)	15	V	
۱ _C	Collector Current	7	Α	
I _{CM}	Collector Peak Current (t _P < 5ms)	12	Α	
Ι _Β	Base Current	4	Α	
P _{TOT}	Total dissipation at T _c = 25°C	36	W	
V _{isol}	Insulation Withstand Voltage (RMS) from All Three Leads to External Heatsink	1500	V	
T _{STG}	Storage Temperature	-65 to 150	°C	
TJ	Max. Operating Junction Temperature	150	°C	

Table 1. Absolute Maximum Rating

Table 2.Thermal Data

Symbol	Parameter	Value	Unit
R _{thJ-case}	Thermal Resistance Junction-Case Max	3.47	°C/W



2 Electrical Characteristics

 $(T_{CASE} = 25^{\circ}C; unless otherwise specified)$

Table J.							
Symbol	Parameter	Test Con	ditions	Min.	Тур.	Max.	Unit
I _{CES}	Collector Cut-off Current (V _{BE} = 0)	V _{CE} = 1150V V _{CE} = 1150V	T _c = 125°C			1 2	mA mA
I _{EBO}	Emitter Cut-off Current $(I_{C} = 0)$	V _{EB} = 14V				1	mA
V _{CEO(sus)} Note: 1	Collector-Emitter Sustaining Voltage (I _B = 0)	I _C = 100mA		600			V
V _{CE(sat)} Note: 1	Collector-Emitter Saturation Voltage	$I_{\rm C} = 4A$ $I_{\rm C} = 4A$	I _B = 0.8A I _B = 1.2A			3 1.5	
V _{BE(sat)} Note: 1	Base-Emitter Saturation Voltage	I _C = 4A	I _B = 0.8A			1.3	V
h _{FE}	DC Current Gain	$I_{C} = 1A$ $I_{C} = 5A$ $I_{C} = 5A$	V _{CE} = 5V V _{CE} = 1V V _{CE} = 5V	4.5	25 5	9	
t _s t _f	INDUCTIVE LOAD Storage Time Fall Time	$I_{C} = 4A$ $V_{Clamp} = 480V$ $I_{B1} = 0.8A$ (See <i>Figure 8</i>)			1 60	1.6 120	μs ns

 Table 3.
 Electrical Characteristics

Note: 1 Pulsed duration = $300 \,\mu$ s, duty cycle $\leq 1.5\%$.



GC63940

 $T_J = 25 °C$

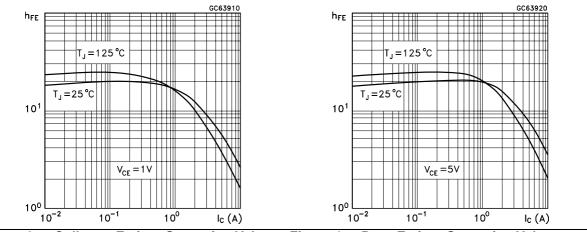
 $h_{FE} = 5$

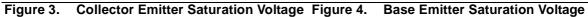
 $I_{c}(A)$

2.1 Typical characteristicsTest circuit

Figure 1. DC Current Gain

Figure 2. DC Current Gain





V_{BE(sat)} (V)

1

0.8

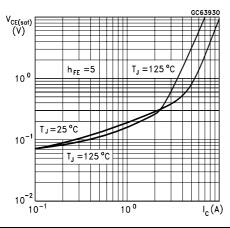
0.6

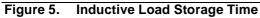
0.4

0.2

0

 10^{-1}





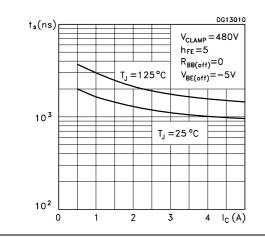
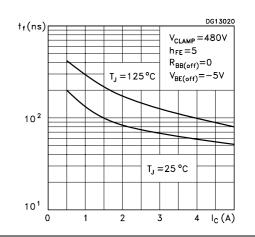


Figure 6. Inductive Load Fall Time

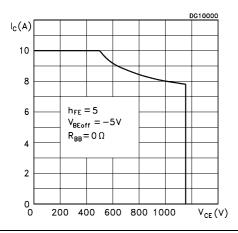
T_J = 125 °C



10⁰

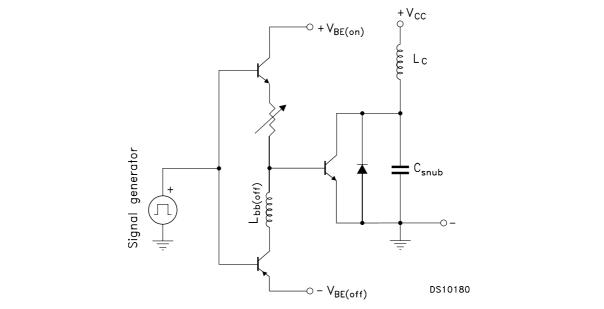


Figure 7. Reverse Biased S.O.A.











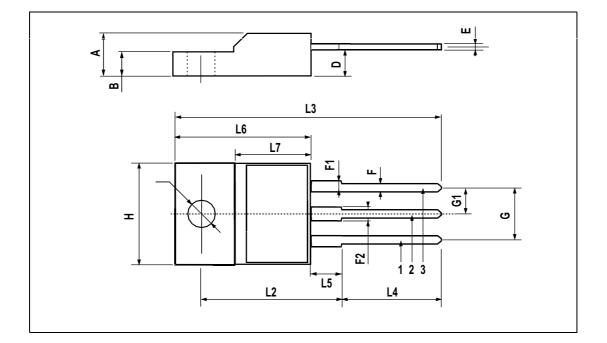
3 Package Mechanical Data

In order to meet environmental requirements, ST offers these devices in ECOPACK[®] packages. These packages have a Lead-free second level interconnect. The category of second Level Interconnect is marked on the package and on the inner box label, in compliance with JEDEC Standard JESD97. The maximum ratings related to soldering conditions are also marked on the inner box label. ECOPACK is an ST trademark. ECOPACK specifications are available at: www.st.com.



DIM.	mm.			inch		
DIM.	MIN.	TYP	MAX.	MIN.	TYP.	MAX.
А	4.4		4.6	0.173		0.181
В	2.5		2.7	0.098		0.106
D	2.5		2.75	0.098		0.108
E	0.45		0.7	0.017		0.027
F	0.75		1	0.030	0.039	
F1	1.15		1.7	0.045		0.067
F2	1.15		1.7	0.045		0.067
G	4.95		5.2	0.195		0.204
G1	2.4		2.7	0.094		0.106
Н	10		10.4	0.393		0.409
L2		16			0.630	
L3	28.6		30.6	1.126		1.204
L4	9.8		10.6	.0385		0.417
L5	2.9		3.6	0.114		0.141
L6	15.9		16.4	0.626		0.645
L7	9		9.3	0.354		0.366
Ø	3		3.2	0.118		0.126





4 Revision History

Date	Revision	Changes
17-Nov-2005	1	Initial release.



Information furnished is believed to be accurate and reliable. However, STMicroelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of STMicroelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

> The ST logo is a registered trademark of STMicroelectronics. All other names are the property of their respective owners

> > © 2005 STMicroelectronics - All rights reserved

STMicroelectronics group of companies

Australia - Belgium - Brazil - Canada - China - Czech Republic - Finland - France - Germany - Hong Kong - India - Israel - Italy - Japan -Malaysia - Malta - Morocco - Singapore - Spain - Sweden - Switzerland - United Kingdom - United States of America

www.st.com

10/10

